

ABSTRACT OF THE DISCLOSURE

5 METHODS AND APPARATUS TO DETECT LOCATION AND ORIENTATION IN AN INDUCTIVE SYSTEM

A base station (e.g., a central device including a transducer assembly of one or more orthogonal transducers) transmits a magnetic field at a known power level and direction. The magnetic field signal includes data information transmitted from the base station to a movable remote station. The remote station includes a transducer assembly of one or multiple transducer coils to receive the magnetic field generated by the base station. Location and orientation of the remote station (with respect to the base station) are determined based on the magnitude, amplitude, and/or phase of magnetic field signals received on each of the remote station's transducers. The remote station may transmit the location and orientation information (e.g., raw measured data or converted data) to the base station using the same coils as used by the remote station to receive the magnetic field generated by the base station.